

## Claims

1. (Amended) A hydrocarbon sensor comprising a substrate made of a solid electrolyte that conducts protons, and a pair of electrodes formed on the substrate,

wherein at least one electrode of the pair of electrodes contains Au and Al, [and] assuming that a content of elemental [an] Al [simple substance] in the at least one electrode is "a" mol%, and a content of aluminum oxide in the at least one electrode is "b" mol%, "a" and "b" satisfy a relationship:  $a + 2b \leq 7$ , and

the at least one electrode contains at least one metal selected from the group consisting of an AuAl<sub>2</sub> alloy and elemental Au, wherein the total mol% of the metals selected from the group is at least 50 mol%.

2. (Canceled)

3. (Amended) A hydrocarbon sensor according to claim [2] 1, wherein the at least one electrode contains AuAl<sub>2</sub> and [an] elemental Au [simple substance] in a molar ratio of AuAl<sub>2</sub> : Au = X : 1-X, where  $0.6 \leq X \leq 1$ .

Claims 4-12 (Canceled)